

## 21.3: Data and Analysis

### Data Collection (25 points)

Following your detailed protocol, perform all the experiments. Record your observations and take pictures of your key steps in the process. Your observations and images need to be incorporated in your data section and this section should be as detailed as possible as you will use this information to complete your discussion.

#### Water

Food color	Color 1 with range	Color 2 with range	Color 3 with range
Red			
Yellow			
Green			
blue			
Solvent front			

#### Salt Water

Food color	Color 1 with range	Color 2 with range	Color 3 with range
Red			
Yellow			
Green			
blue			
Solvent front			

#### Isopropyl alcohol

Food color	Color 1 with range	Color 2 with range	Color 3 with range
Red			
Yellow			
Green			
blue			
Solvent front			

#### Water

Candy	Color 1 with range	Color 2 with range	Color 3 with range

Candy	Color 1 with range	Color 2 with range	Color 3 with range
Solvent front			

### Salt Water

Candy	Color 1 with range	Color 2 with range	Color 3 with range
Solvent front			

### Isopropyl alcohol

Candy	Color 1 with range	Color 2 with range	Color 3 with range
Solvent front			

### Data Processing (25 points)

1. To compare data between groups, how are the distances from the starting line standardized to take into account different run times?
2. What are the primary colors? What are secondary colors?
3. Provide evidence to indicate whether the primary colors of the food dye were made up of a single-color dye.
4. Why did you use 3 different solvents to investigate your dye colors?
5. Did all the solvents move at the same speed up the paper? Explain.
6. Fill in the following table using the observations and data from your

Assumptions made	Testing the assumption	If assumptions are wrong ...
The distilled water is pure	Evaporate it and check for residue	The density would change depending on the density of the contaminant
Food color is water soluble	Try dissolving food color in nonpolar solvent	

Assumptions made	Testing the assumption	If assumptions are wrong ...
Candy dye separates into component colors in water		Only one color will be observed

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